CLAIMS

1. A clamp device comprising a support frame member, a lower clamp unit and an upper clamp unit supported by the support frame member, the lower clamp unit having a pair of lower jaws and first actuating means for actuating at least one of the lower jaws between clamped and unclamped positions, the upper clamp unit having a first upper jaw and a second upper jaw, and a second actuating means for actuating at least one of the upper jaws between clamped and unclamped positions.

2. A device as defined in claim 1, further comprising displacement means for displacing the second upper jaw between the unclamped position and an inoperable position.

3. A device as defined in claim 2, the lower clamp unit further comprising a lower anchor portion mounted on the support frame member, a first of the lower jaws being movable relative to the lower anchor portion.

4. A device as defined in claim 3 wherein the second lower jaw is fixedly mounted to the lower anchor portion.

5. A device as defined in claim 4 wherein the first lower jaw includes a first member pivotally coupled to the lower anchor portion for movement about a first axis and a second member coupled to the first member.

6. A device as defined in claim 3, the upper clamp unit further comprising an upper anchor portion which is mounted on the support frame member, the second upper jaw being movable relative to the upper anchor portion.

7. A device as defined in claim 6 wherein the second upper jaw includes a third member pivotally coupled to the upper anchor portion for movement about a second axis and a fourth member which is coupled to the third member.

8. A device as defined in claim 1 wherein each of the first and second actuating means include a linear or rotary, hydraulic or pneumatic drive member

9. A device as defined in claim 8, further comprising control means for controlling the drive member, the control means operable in:

- a first phase to actuate the lower clamp unit between unclamped and clamped positions;

- a second phase to actuate the second upper clamp member between the unclamped and inoperative positions; and

- a third phase to actuate the upper clamp unit between the unclamped and clamped positions.

10. A clamp device capable of clamping two different work pieces, comprising a lower pair of clamp members and an upper pair of clamp members, actuating means for independently actuating the lower and upper clamp members between respective clamped and unclamped positions, at least one of the upper clamp members being moveable between the unclamped position and a retracted position wherein the upper pair of clamp members are inoperable.

11. A device as defined in claim 10 wherein one of the upper clamp members is fixed to one of the lower clamp members.

12. A device as defined in claim 11 wherein at least one of the lower clamp member is movable about a first axis.

13. A device as defined in claim 12 wherein at least one of the upper clamp members is movable about a second axis.

14. A clamp device capable of clamping two different work pieces, comprising a lower jaw unit, an intermediate jaw unit and an upper jaw unit, the lower jaw unit and the intermediate jaw unit having adjacent clamp surfaces to clamp a first work piece, the intermediate jaw unit and the upper jaw unit having adjacent clamp surfaces to clamp a second work piece, first actuating means for actuating either the lower jaw unit or the intermediate jaw unit or both to clamp the first work piece, second actuating means for actuating either the intermediate jaw unit or the upper jaw unit or both to clamp the second work piece, the upper jaw unit or the lower jaw unit being movable between an operative position and a retracted position, the retracted position being selected to permit the first work piece to be clamped and the operative position being selected to permit the second work piece to be clamped.

15. A work piece clamp assembly for supporting at least two different work pieces, comprising a frame, a plurality of clamp devices mounted on the frame and operable in a first phase to clamp a first work piece at a corresponding plurality of clamping sites thereon and in a second phase to clamp a second work piece at a corresponding plurality of clamping sites thereon, wherein the clamping sites on the first work piece are in substantially the same location as the clamping sites on the second work piece, each of the clamp devices having a lower pair of clamp members and an upper pair of clamp members, actuating means for

independently actuating the lower and upper clamp members between respective clamped and unclamped positions, at least one of the upper clamp members or at least one of the lower clamp members being moveable between the unclamped position and a retracted position wherein the corresponding upper pair of clamp members or the lower pair of clamp members are inoperable.

16. A work piece clamp assembly for supporting at least two different work pieces, comprising a frame, a plurality of clamp devices mounted on the frame and operable in a first phase to clamp a first work piece at a corresponding plurality of clamping sites thereon and in a second phase to clamp a second work piece at a corresponding plurality of clamping sites thereon, wherein the clamping sites on the first work piece are in substantially the same location as the clamping sites on the second work piece, each clamp device comprising a lower jaw unit, an intermediate jaw unit and an upper jaw unit, the lower jaw unit and the intermediate jaw unit having adjacent clamp surfaces to clamp a first work piece, the intermediate jaw unit and the upper jaw unit having adjacent clamp surfaces to clamp a second work piece, first actuating means for actuating either the lower jaw unit or the intermediate jaw unit or both to clamp the first work piece, second actuating means for actuating either the intermediate jaw unit or the upper jaw unit or both to clamp the second work piece, the upper jaw unit being movable between an operative position and a retracted position, the retracted position being selected to permit the first work piece to be clamped and the operative position being selected to permit the second work piece to be clamped.

17. A clamp device comprising a support frame member, a lower clamp unit and an upper clamp unit supported by the support frame member, the lower clamp unit having a pair of lower jaws and first actuating means for actuating at least one of the lower jaws between clamped and unclamped positions, the upper clamp unit having a first upper jaw and a second upper jaw, and a second actuating means for actuating at least one of the upper jaws between clamped and unclamped positions, the first upper jaw being fixed for movement with one of the lower jaws.

18. A method of clamping two or more groups of work pieces, comprising the steps of:

- providing a lower clamp unit and an upper clamp unit;
- providing the lower clamp unit with a pair of lower jaws;
- actuating at least one of the lower jaws between clamped and unclamped positions, firstly to receive each of the first group of work pieces, and secondly to clamp each of the first group of work pieces, for processing each of the first group of work pieces;
- providing the upper clamp unit with a pair of upper jaws; and

- actuating at least one of the upper jaws between clamped and unclamped positions, thirdly to receive each of the second group of work pieces, and fourthly to clamp each of the second group of work pieces for processing each of the second group of work pieces.

19. A method as defined in claim 18, further comprising the step of rendering the upper clamp unit inoperable during the actuation of the lower clamp unit.

20. A method as defined in claim 18, further comprising the step of rendering the lower clamp unit inoperable during the actuation of the upper clamp unit.

21. A method as defined in claim 18, further comprising the step of joining together one jaw of each clamp unit.

22. A method as defined in claim 21 wherein the joining step includes the step of joining adjacent jaws of the upper and lower clamp units.

23. A method as defined in claim 21, further comprising the step of offsetting one of the clamp units at an angle relative to the other of the clamp units.

24. A method of clamping two or more groups of work pieces, comprising:

- a step for providing a support frame member,
- a step for providing a first clamp unit and a second clamp unit supported by the support frame member,
- a step for providing the each of the first and second clamp units with a pair of clamp members;
- a step for joining one of the clamp members of the first clamp unit with one of the clamp members of the second clamp unit;
- a step for actuating the second clamp unit to a position where it does not obstruct the operation of the first clamp unit;
- a step for actuating the first clamp unit to clamp at least one first work piece;
- a step for actuating the first clamp unit to a position where it does not obstruct the operation of the second clamp unit; and
- a step for actuating the second clamp unit to clamp at least one second work piece.